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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,725	10/03/2003	Robert C. Lam	01170/00078	6124
43215	7590	05/02/2006	EXAMINER	
BORGWARNER INC. PATENT DEPARTMENT 3850 HAMLIN ROAD AUBURN HILLS, MI 48326-2872			SPERTY, ARDEN B	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/678,725

Applicant(s)

LAM, ROBERT C.

Examiner

Arden B. Sperty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,7,9-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,7,9-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

FINAL OFFICE ACTION

1. Applicant's comments and amendments, submitted 2/14/06, have been entered and carefully considered.
2. Rejection of claim 2 under 35 USC 112, second paragraph, is withdrawn per Applicant's amendment.
3. Rejection of claims 1 and 10 under 35 USC 112, second paragraph, are withdrawn per Applicant's remarks, as detailed below in the section *Response to Arguments*.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-5, 7, and 9-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification does not provide enablement for a fibrous base material comprising an amount of resin of 20% or less (claim 1), or 15% or less (claim 10).

Claim Rejections - 35 USC § 103

6. Claims 1-5, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5646076 to Bortz, as stated in the previous office action.

7. The Bortz reference teaches friction material composites comprising a nonwoven textile component and polymer impregnation (Abstract). The nonwoven component includes staple fibers (col. 5, lines 4-9) formed into a nonwoven carded web. The fibers are described throughout the reference, and include low friction carbon fibers (col. 6, line 45), and higher coefficient of friction cotton fibers (col. 6, line 54), heat resistant aramid fibers (col. 7, line 1). The reference is silent with respect to the exact amounts of each of the fiber types, because the ultimate intended environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied. This is indicated at column 6, line 60, to column 7, and throughout the reference. Absent a showing of unexpected results with the claimed amounts, the proportions appear to be within the ordinary level of skill of one in the art, whom the reference indicates will determine functional and preferred ranges. *In re Aller 105 USPQ 233 (CCPA 1955)*.

8. Non-fibrous particulate filler materials may also be included (col. 10, lines 25-38) in amounts generally less than 50% by wt of the nonwoven material, more preferably in amounts less than 40% by wt. This range encompasses the range claimed by Applicant. Further, absent a showing of unexpected results, it would have been obvious for one of ordinary skill in the art to optimize the amount of the particulate material within the disclosed range. *In re Boesch 205 USPQ 215 (CCPA 1980)*.

9. Finally, the nonwoven material is impregnated (col. 8, lines 26-61) with a material selected for friction and wear properties, processability, and cost (col. 8, lines 45-47).

The reference is not concerned with the amount of resin, relative to the nonwoven material. As stated above, the ultimate intended environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied.

This is indicated at column 6, line 60, to column 7, and throughout the reference.

Similarly, it would have been obvious to one of ordinary skill in the art to determine the preferred amount of resin for the features desired for the ultimate intended use, absent a showing of unexpected results. *In re Aller* 105 USPQ 233 (CCPA 1955).

10. The reference further teaches a preferred void volume of more than 30%, more preferably more than 50% (col. 10, lines 54-64).

11. Regarding claim 5, the reference mentions that woven forms of the textile material are known, although not preferred by some (col. 2, lines 41+). An embodiment need not be preferred in order to meet claim limitations.

12. Claims 7 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5646076 to Bortz as applied to claim 1 above, and further in view of US Patent 5707905 to Lam et al. The rejection remains as stated in the previous office action.

As stated above,

The Bortz reference teaches friction material composites comprising a nonwoven textile component and polymer impregnation (Abstract). The nonwoven component includes staple fibers (col. 5, lines 4-9) formed into a nonwoven carded web. The fibers are described throughout the

reference, and include low friction carbon fibers (col. 6, line 45), and higher coefficient of friction cotton fibers (col. 6, line 54), heat resistant aramid fibers (col. 7, line 1). The reference is silent with respect to the exact amounts of each of the fiber types, because the ultimate intended environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied. This is indicated at column 6, line 60, to column 7, and throughout the reference. Absent a showing of unexpected results with the claimed amounts, the proportions appear to be within the ordinary level of skill of one in the art, whom the reference indicates will determine functional and preferred ranges. *In re Aller 105 USPQ 233 (CCPA 1955)*.

Non-fibrous particulate filler materials may also be included (col. 10, lines 25-38) in amounts generally less than 50% by wt of the nonwoven material, more preferably in amounts less than 40% by wt. This range encompasses the range claimed by Applicant. Further, absent a showing of unexpected results, it would have been obvious for one of ordinary skill in the art to optimize the amount of the particulate material within the disclosed range. *In re Boesch 205 USPQ 215 (CCPA 1980)*.

Finally, the nonwoven material is impregnated (col. 8, lines 26-61) with a material selected for friction and wear properties, processability, and cost (col. 8, lines 45-47). The reference is not concerned with the amount of resin, relative to the nonwoven material. As stated above, the ultimate intended environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied. This is indicated at column 6, line 60, to column 7, and throughout the reference. Similarly, it would have been obvious to one of ordinary skill in the art to determine the preferred amount of resin for the features desired for the ultimate intended use, absent a showing of unexpected results. *In re Aller 105 USPQ 233 (CCPA 1955)*.

13. The Bortz reference does not specify the use of "less fibrillated" aramid fibers. The Lam '905 reference teaches advances in aramid fibers used in friction materials (col. 8, lines 10-63) such as those taught by Bortz. The aramid fibers of the Lam reference are less fibrillated, effecting more and larger pores than a typical fibrillated aramid fiber, such as is used in Bortz. More and larger pores are advantageous for permeability properties. Therefore, it would have been obvious to one of ordinary skill in

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the art, at the time the invention was made, to employ the less fibrillated fibers of the Lam reference, in order to provide more and larger pores for improved permeability and other properties. Thus, the limitations of claim 10 would have been met. The same structure would also meet the specific pore size as required by claim 7. The pores resulting from the less fibrillated aramid fibers, as taught by Lam, have an average pore size of about 2.0 to 15 microns in diameter (col. 8, lines 19-22). Claim 7 depends from claim 1, which requires aramid fibers of no specific degree of fibrillation.

Response to Arguments

14. Applicant argues on pages 5-7 that the newly claimed amount of resin does not constitute new matter, because the amount was implicitly disclosed in the previously drafted claims. The examiner disagrees. The percentages used to define the fibrous base material are irrespective of resin content, as has been determined from Applicant's specification (page 6, lines 4-9). Therefore, a particular amount of resin is not implied by the fibrous base material percentages.

15. On page 7, Applicant addresses the rejection of claims 1 and 10, under 35 USC 112, second paragraph. Applicant is persuasive in that the "consisting essentially of" language does not require the ranges to total 100%. The "consisting essentially of" language does not exclude the additional materials, which Applicant recites may constitute the remainder of the fibrous base material (specification page 6, lines 3-9). It is noted that on page 8, Applicant says of the fibrous base material ranges (lines 2-3), that "one skilled in the art easily could calculate the amount of resin." The statement

appears misplaced. Although the ranges do not necessarily equate to 100%, there is no reason to presume that Applicant intended resin to make up the remaining amount. The specification indicates that the remaining amount is made up of fillers, friction modifiers, and the like (page 6, lines 3-9). Resin is not a filler, a friction modifier, or the like.

Therefore, the rejection under 35 USC 112, second paragraph, is withdrawn, because fillers, friction modifiers, and the like may comprise the remainder of the fibrous base material. Withdrawal of the rejection is NOT based on arguments regarding implied resin content.

16. In the second full paragraph of page 8, Applicant submits that the amounts of fiber and filler are expressed in percentages that are so specific that the amount of resin is clear to one skilled in the art. On the same page, Applicant asserts that the original claims clearly suggest an amount of resin of 20% or less. Again, the examiner disagrees. The percentages used to define the fibrous base material are irrespective of resin content, as has been determined from Applicant's specification (page 6, lines 4-9). Therefore, a particular amount of resin is not implied by the fibrous base material percentages. Furthermore, the specification (page 11, lines 24-25) recites a fibrous base material with a resin content of 25-70%. It would not have been necessary for one to extrapolate the desired amount of resin, because the amount of resin is set forth as 25-70% of the fibrous base material. The specification does NOT recite or imply a fibrous base material with a resin amount of 20% or less.

17. Applicant addresses the rejection of claims 1-5 and 9 under 35 USC 103(a) on page 9 of the remarks. Applicant first asserts that the "key elements" do not exist in the

Bortz reference. It is not clear what Applicant intends as the "key elements," because a nonwoven comprising carbon fibers, cotton fibers, aramid fibers, and a polymer impregnation, clearly exist in the Bortz reference. Since it is not clear what Applicant intends as "key elements," the argument is unpersuasive. Applicant further states, "The Examiner cannot add to Bortz what is not there." Applicant is reminded that the rejection is made under 35 USC 103, not 35 USC 102. The motivation to optimize the amounts of each type of fiber is found in the Bortz reference itself, as stated in the rejection. These points emphasize that the examiner is not attempting to add to Bortz what is not there.

18. Applicant then asserts that one would not reach the claimed combination without Applicant's specification as a road map. Again, it is noted that the reference teaches optimization of fiber amounts; the reference provides motivation for optimization. The examiner has properly established a *prima facie* case of obviousness, and Applicant has not provided unexpected results to rebut the rejection. Therefore, the rejection remains.

19. Still on page 9, Applicant submits that the examiner's motivation to optimize the proportions is not supported in fact or theory. Again the examiner disagrees, because the reference itself provides motivation to optimize the proportions. Applicant asserts that the "high" fiber content of the claimed invention is not disclosed. Not only is "high" a relative and undefined term, but Applicant has not shown a "high" fiber content, or the claimed fiber content, to provide unexpected results.

20. On pages 10-11, Applicant addresses the combination of Bortz and Lam, as they are applied to claims 7 and 10-13 under 35 USC 103(a). Applicant essentially argues

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that there is no motivation to modify the invention of the Bortz reference; the implication is that the invention of the Bortz reference is perfect. No such presumption can be made. Everything has room for improvement, thus is the nature of technology. The examiner disagrees with the assertion that any modification of the Bortz invention would be unwarranted; the Lam reference sets forth the advantages of the less fibrillated fibers in similar friction materials. In view of these advantages, it would have been obvious to incorporate such fibers in practicing the invention of the Bortz reference. Such a substitution would not destroy the intent of the Bortz friction material.

21. Applicant then asserts that one would not reach the claimed combination without relying on hindsight. The examiner remains of the position that the prior art, not Applicant's specification, is relied upon for the stated rejection. The Lam reference sets forth the advantages of less fibrillated aramid fibers, thus the prior art provides the proper motivation.

22. The double patenting rejections stated in the previous office action are withdrawn, as neither US Patent 6630416, nor application serial number 10/678720, teach a resin content of 20% or less. If the claims are amended to remove the limitation requiring 20% or less of resin, the examiner reserves the right to reinstate the double patenting rejections.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

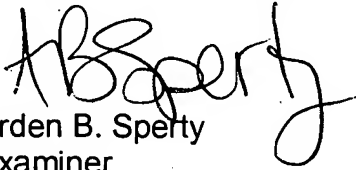
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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arden B. Sperty whose telephone number is (571)272-1543. The examiner can normally be reached on M-Th, 08:00-16:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arden B. Sperty
Examiner
Art Unit 1771

April 18, 2006



CHERYL A. JUSKA
PRIMARY EXAMINER